

nih record



ABOVE • The color purple brightens the day for Rakan Al-Ayoub, 6, of Jordan, at the Children's Inn. See story, p. 2.

features

Laughs Are Prominent at Unscripted Conversation with Alda, Rosenblatt

1

They Came, They Listened, You Spoke: Return of StoryCorps

3

FIC's Glass Wins Sabin Gold Medal

7

Events Mark National Minority Health Month

12

departments

| | |
|----------|----|
| Briefs | 2 |
| Digest | 10 |
| Feedback | 11 |
| Seen | 12 |

Witty Repartee

Alda, Rosenblatt Share Communication Advice with NIH

By Rich McManus

Masur Auditorium is not known for gales of laughter that sweep through the audience during town hall meetings and scientific talks. But it might as well have been the site of *The Colbert Report* in its prime on May 21, when actor/director Alan Alda and his old friend, writer Roger Rosenblatt, joined NIH director Dr. Francis Collins for an unscripted conversation before a packed hall.

It was as though the final talk in the ninth year of the NIMH Director's Innovation Speaker Series mistook itself for the round table at the Algonquin Hotel back in the 1920s, when writer Dorothy Parker held witty salons.

Everyone was prepared for

SEE ALDA, PAGE 6



Intelligence is always celebrated in Masur Auditorium; wit, not so much. That changed with (from l) Alan Alda, NIH director Dr. Francis Collins and Roger Rosenblatt on May 21.

'Tranceformation'

How Can Hypnosis Treat Medical Problems?

By Carla Garnett

That time you were totally absorbed, whether you were sinking every jumpshot or flying around Hogwarts? Well, you just might have been under hypnosis. Researchers believe that super-focused trance-like states can be harnessed to treat medical

problems—to reduce pain or control neuromuscular disorders, for instance.

"[Hypnosis] is the oldest Western conception of a psychotherapy," said NIH grantee Dr. David Spiegel in a recent NCCIH Integrative Medicine Research Lecture. "It's the first time



Dr. David Spiegel

SEE HYPNOSIS, PAGE 4

Be 'Your Own Advocate'

Radiologist Describes Cancer Treatment From Patient Perspective

By Eric Bock

"Sometimes I felt like I was in a play. I knew all the lines, but they had me reading the wrong part." That's how Dr. Laura Liberman described being a patient at the same hospital where she worked for nearly 20 years as a radiologist and cancer researcher.



Dr. Laura Liberman

Liberman is director of the Office of Faculty Development and attending radiologist in the breast imaging service at Memorial Sloan-Kettering Cancer Center and professor of radiology at Weill Cornell Medical College. She recounted her experiences as a doctor turned

SEE LIBERMAN, PAGE 8



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NIH...Turning Discovery Into Health

briefs

Grad, Professional School Fair Set, July 15

The NIH Graduate & Professional School Fair will be held on Wednesday, July 15 from 9 a.m. to 3:30 p.m. at Natcher Conference Center. The fair provides an opportunity for NIH summer interns (especially those in college) and postbacs, as well as other college students in the D.C. area, to prepare for the next step in their careers by exploring educational programs leading to the Ph.D., M.D., D.D.S., M.D./Ph.D. and other graduate and professional degrees. More than 150 colleges and universities from across the U.S. will send representatives of their grad schools, medical and dental schools, schools of public health and other biomedically relevant programs to the fair in the hopes of recruiting NIH trainees.

The day will also include workshops on getting to graduate and professional school, M.D./Ph.D. programs, interviewing and careers in public health, psychology and dentistry. Exhibits will be open from 10 a.m. to 2:15 p.m.

A list of participating institutions planning to attend and registration information can be found at https://www.training.nih.gov/gp_fair.



Julius Presents Daly Memorial Lecture

On May 27, NIH hosted the 6th annual John Daly Memorial Lecture featuring Dr. David Julius (r) of the University of California, San Francisco, School of Medicine. His lecture, "TRP Channels and Pain: From Physiology to Atomic Structure," discussed the power of natural products to reveal the molecular mechanisms behind how we feel, sense and touch. The lecture is given in memory of Dr. John Daly, a noted natural products chemist and pharmacologist at NIDDK. Presenting Julius with a plaque of appreciation is NIDDK senior investigator Dr. Ken Jacobson.

PHOTO: SAIBAL CHAKRABORTY



Musicians Entertain at Children's Inn

Musicians from the Baltimore Symphony Orchestra performed for families at the Children's Inn at NIH on May 28, prior to the families attending the BSO: Tribute to John Williams concert later that evening at Strathmore Music Center. The event was sponsored by the XA Project, a non-profit charity named in memory of 9-year-old Xavier Atienza. Inspired by Xavier's extraordinary life and spirit, his father Dr. Audie Atienza, a senior behavioral scientist at the National Cancer Institute, created the XA Project to provide opportunities for children facing life-threatening illnesses and their families to experience the wonder, beauty and joy of dance, theater, music and other artistic performances.



A Colorful Encounter at the Inn

Families at the Children's Inn at NIH had a surprise visit from Orchid, a 7-foot tall purple crayon, on May 22. The visit was one of the stops on a 3-week, 13-city "Splash of Color" road trip. In each city, Crayola Experience showers a child or a group of children with a big dose of color and creativity in an effort to inspire kids who need it most. Enjoying Orchid's visit to NIH are Jacob and Liam Sneed (age 2) from Eunice, La.

nih record

Heilemann To Give NINR Director's Lecture, June 24

Dr. MarySue Heilemann will present the first 2015 NINR Director's Lecture on June 24 from 10 to 11 a.m. in Lipsett Amphitheater, Bldg. 10. In her talk, "From the Silver Screen to the Web: Portrayals of Nursing in Media," she will discuss how nurses have been portrayed in print and visual media in the past, as well as issues related to future media representations of nursing.

Heilemann is an associate professor at the UCLA School of Nursing and an internationally recognized researcher and methodologist.

Her NINR-funded research interventions combined multiple modalities to increase resilience among low income, second generation Latinas in the U.S. This work led Heilemann to consider the use of media in health research; her move to the city of Los Angeles brought an unexpected role consulting with Hollywood filmmakers on the creation of nurse characters.



As an innovator on the use of media in nursing science, Heilemann initiated, organized and moderated two national symposia that brought together nearly 300 scholars, filmmakers, nurses, media experts, actors, producers and writers. The symposia examined historical portrayals of nurses in print and visual media in order to gain understanding and strategize efforts to influence media portrayals of nursing for the future. Together with her collaborators, she has deepened the dialogue about the effects of media stereotypes on the profession of nursing, health care and society at large.

Following Heilemann's lecture, the National Library of Medicine will display a special selection from the Zwerdling Postcard Collection outside of Lipsett Amphitheater. NLM recently acquired the extensive collection of postcards that depict nurses, the nursing profession and myriad cultural perceptions that surround them.

The event is free and open to the public. No registration is required. For more information, visit www.ninr.nih.gov/directorslecture.



StoryCorps Trailer Visits Campus

You've got to admit it, there's something about an Airstream trailer—particularly when it's parked on the sidewalk in front of the Clinical Center—that speaks of passages, journeys, arrivals. This trailer belongs to StoryCorps, a national oral history project that returned to campus this spring (they were also here last December) to tape sessions of NIH'ers in conversation with one another. The iconic aluminum trailer served as a collection point for stories May 27-29 and June 4-6. Among those seen signing up for sessions: NIAID director Dr. Anthony Fauci and NIAID deputy director Dr. Clifford Lane. To learn more, visit www.nih.gov/about/storycorps/.

PHOTO: RICH MCMANUS

NINR's Grady Honored as 'Visionary Pioneer'

Dr. Patricia Grady, director of the National Institute of Nursing Research, was recently honored by the University of Maryland School of Nursing (UMSON) at its 125th anniversary gala. The event was held at the Baltimore Marriott Waterfront Hotel.

UMSON selected 25 exceptional alumni who have become experts in their respective fields to receive the Visionary Pioneers award. The inaugural award recipients were chosen for their "significant impact on and contributions to the nursing profession based on their leadership, innovation or entrepreneurship."

"We are excited to announce our inaugural Visionary Pioneer Award winners during this momentous year in the School of Nursing's history," said Dr. Jane Kirschling, dean of the school. "All of these outstanding alumni have had an impact on the nursing profession and health care and we are extremely proud of them."

Grady received her master's degree from UMSON and her doctorate in physiology from the University of Maryland School of Medicine.



NINR director Dr. Patricia Grady (r) and UMSON dean Dr. Jane Kirschling

PHOTO: UMSON

Hypnosis, Spiegel quipped, “has been something like the oldest profession—everybody’s interested in it, but no one wants to be seen in public with it.”



HYPNOSIS

CONTINUED FROM PAGE 1

a talking interaction was thought to have therapeutic potential. It’s useful as a model system for understanding how brain-body interactions work.”

Spiegel is medical director of the Center for Integrative Medicine at Stanford University School of Medicine. His talk, “Transformation: Hypnosis in Brain and Body,” covered several aspects of the field including hypnotizability, brain regions involved in hypnosis, modulation of perception and integrative medicine.

History of Hypnosis

First addressing what he called the “long and checkered past” of hypnosis, Spiegel offered a brief history. Viennese physician Franz Anton Mesmer founded the field. In the 18th century, “he theorized that magnetic fields flow through the body. When people got sick, something went wrong with their magnetic fields. [Mesmer believed] if he put his magnetic field next to their magnetic field, theirs would get better. I don’t know why his didn’t get worse.”

Mesmer moved to France, where his practice flourished. Not really surprising, Spiegel said. Compare hypnosis with what French doctors were using back then—blood-letting. Patients under the care of French physicians were more prone to die.

Mesmer’s success did not endear him to the French medical establishment, which begged King Louis to investigate the Viennese doctor. A panel that included Benjamin Franklin and “pain-control expert” Dr. Joseph-Ignace Guillotin, inventor of the execution device that bears his name, concluded Mesmer’s method was “nothing but heated imagination.”

That episode ended Mesmer’s career and recorded perhaps the first doubt about trances as medicine. It did not prevent further pursuit of hypnosis’s potential healing powers nor further skepticism.

Hypnosis, Spiegel quipped, “has been something like the oldest profession—everybody’s interested in it, but no one wants to be seen in public with it...It was at the foundation of many very important movements, including psychoanalysis.”

Sigmund Freud began psychoanalysis by using hypnosis as “a royal road to the unconscious,” Spiegel said. When Freud found some patients formed irrational feelings for their physicians during hypnosis, he stopped the practice. Instead of entering trance-like states, patients were urged

to free associate. At the end of his career, however, Freud returned to an interest in hypnosis.

You Are Not Getting Very Sleepy

“I’m here to tell you hypnosis shouldn’t get rejected,” said Spiegel, whose research—with funding over the years from NIH, NCI, NIMH and NCCIH—spans four decades in such areas as psycho-oncology, stress and health, pain control and clinical applications of hypnosis.

Defining hypnosis as a “state of aroused, attentive, focused concentration with diminished peripheral awareness,” Spiegel also refuted a common misconception. “You don’t go to sleep,” he said. “Hypnosis is not sleep. It’s a narrowing of the focus of attention. Hypnosis is to consciousness what a telephoto lens is to a camera: What you see you see with great detail, but you’re less aware of the context.”

So, can hypnosis make folks flap their arms and squawk like a chicken? No, usually not. Some vulnerability does come with the practice, though.

“People in hypnosis are less likely to critically judge what you say to them,” noted Spiegel, explaining suggestibility. “You’ve got to be careful what you say to them, because they’re less likely to correct your mistakes...It makes people nervous, because we are all social creatures. We all respond to social cues and sometimes we do so irrationally. Hypnosis is an example of how much we can allow input from other people—even people we don’t know very well—to control our perception, judgment and behavior.”

In the Zone?

We use hypnotic-like states in normal activities, Spiegel said. “Self-hypnosis is what people do when they want to enhance performance.” Top athletes commonly describe their training techniques for competing at their highest levels as involving intensely focused imagination. They visualize their best performance to the exclusion of all else around them. Spiegel said that type of laser-focused attention is a form of self-hypnosis.

“People who are more highly hypnotizable have more self-altering states of attention—total absorption—in everyday life all the time,” Spiegel noted. “They get lost in a sunset or a movie or reading a novel.”

Studies indicate that hypnotizability cannot be taught. In fact, Spiegel said, it’s a more stable trait over the lifespan than IQ. Researchers estimate that about one-third of people cannot be hypnotized, while 15 percent of the population is considered highly hypnotizable. The rest of us have varying degrees of hypnotizability that we can be trained to use.

In terms of neurophysiology, Spiegel said researchers see brain differences between people who are high and low in hypnotizability. The brain’s anterior cingulate cortex (ACC) region—where tasks such as attention, monitoring and pain management are located—seems to play a significant role in hypnotic experience.

Scientists have collected “data showing how if you change

how distressing pain is—not the sensation itself, but how much it bothers you—then you reduce activity in the [ACC] as well,” he explained.

Highly hypnotizable individuals have more functional connectivity—an fMRI term for neurons that fire together—between the dorsal ACC and portions of the executive control network in the dorsolateral prefrontal cortex, Spiegel pointed out. This means that paying attention and carrying out a task are highly coordinated among high hypnotizables, he said.

Researchers conducted brain scans of study participants while they were under hypnosis. Scientists examined which brain regions turn on and off and which areas work together. These studies helped clarify how dissociation occurs, Spiegel said.

“When you’re engaged in hypnosis, you’re not ruminating about yourself,” he noted. “People will engage in hypnotic experiences and they often won’t remember what they did...We think it has to do with an inverse relationship between being hypnotized and functioning of the [brain’s] default mode network...We’re beginning to understand what goes on in the brain when people enter these altered states.”


Change Your Mind

Spiegel showed videos of some of his clinical work. In one clip, a patient with Parkinson’s disease who experienced near-constant involuntary tremors in his hand was able, under self-hypnosis, to rest his hand. He imagined himself in his happy place—Hawaii, in this case—and the tremors stopped.

Spiegel shared results from some of his group’s other studies:

- One out of four patients under hypnosis can permanently quit smoking.
- Self-hypnotized metastatic breast cancer patients were able to cut their pain levels in half.
- Children taught to imagine themselves elsewhere better tolerated a painful invasive medical exam; procedure time was reduced by 17 minutes.

“In hypnosis, you actually use words to transform perception,” Spiegel concluded. “So some of our ability to manipulate experience is not just from speech and motor activity but also from the ability to control our own perceptual processes...We have an amazing ability in our brain to alter not just how we react to perception but also what it is that we perceive...If you think it is taking away control, it isn’t. Hypnosis is teaching people control.”

Watch the full lecture at <http://videocast.nih.gov/summary.asp?Live=15741&bhcp=1>. 



NIMHD staff have committed to an inclusive, respectful workplace.

EDI, NIMHD Adopt Respect Initiatives

The Office of Equity, Diversity, and Inclusion believes a respectful workplace requires cooperation and support from every employee. Within EDI, a team was formed to develop a formal policy document on the topic. The policy came to life with creation of a poster signed by every staff member. It captures the spirit of the Respect and Dignity Policy, a pledge employees take when they come to work in EDI.

“The conversations and debate about respect and dignity and the implementation of the pledge as an employee-led effort have really transformed how EDI operates,” said Debra Chew, EDI director. “The key for me was empowering each member of our team, irrespective of grade level, to respectfully and privately call a flag on anyone who may violate the spirit of the pledge. This dignified feedback process allows all of us to improve and get better at this. That’s the key—the notion of continuous improvement. And everyone within EDI has owned this.”

Under the leadership of acting director Dr. Yvonne Maddox, the National Institute on Minority Health and Health Disparities has established an Equity, Dignity, Inclusion and Respect Initiative. The institute has embarked on “a year of conversations” centered around the EDI Respect and Dignity Pledge, which includes a staff survey to assess the climate for change and identify where challenges and opportunities for improvement lie.

“The initiative is central to the work that we do at NIMHD since it relates directly with our mission of equity and inclusion of all groups,” said Maddox. “Our mission also needs to be lived and experienced in our workplace environment. By working together to identify the values we would like to retain, and learning how to implement strategies for change, we will create a more rewarding, positive and productive workplace.”

Upon her arrival at NIMHD, Maddox introduced her management philosophy to staff, based on the book *Gung Ho!* by authors Ken Blanchard and Sheldon Bowles. Her enthusiasm and excitement describing the “Gung Ho philosophy” was contagious. As a result, a team of employees began a series of discussions that included senior leadership and management. The values endorsed by staff include transparency, inclusiveness, trusted information, quality work, innovation, creativity, partnering and teamwork. A key outcome was establishment of the NIMHD worklife committee, which was officially chartered on Mar. 9.

“The first line of the EDI Pledge says ‘I am a change agent,’ which embodies part of what the committee hopes to be—a group of committed staff who want to help NIMHD be a place where everyone wants to work,” said Dr. Jessica Escobedo, worklife committee chair. The committee will solicit new members annually and seeks to include staff from all of the institute’s components.

Right:
Alda (l), Collins (c) and Rosenblatt
took turns discussing ways to
communicate more clearly. Humor
was a common ally.

PHOTOS: BILL BRANSON



ALDA

CONTINUED FROM PAGE 1

Alda's humor. Heck, he's Hawkeye Pierce of *M*A*S*H*, a ball of irreverent and intelligent fun. His mellow geniality proved infectious though, turning his talk mates into competitive quipsters. The audience ate it up.

In introductory remarks, Collins predicted "a fun-loving, fairly informal conversation, but we'll also try for some substance from time to time."

Even seasoned communicators at NIH concede there was a cache of wisdom couched amid the chuckles.

"Writing is the way we can trust one another," said Rosenblatt, "and gather with one another what means the most to us...We live in the world of narration."

Replied Alda, "We remember things that have an emotional tinge to them. I'm not saying that you need to have a nervous breakdown..."

"But it's memorable when it happens," noted Collins.

For the past 6 years, Alda has helped run the Center for Communicating Science at Stony Brook University. Four years ago, he visited NIH to demonstrate, via improvisational acting, the ingenious ways humans find to share information with one another. Collins' first question dealt with the origins of Alda's interest in science.

"I've been interested since I was a boy, about 6 years old," said Alda. "I remember mixing my mom's face powder with toothpaste, trying to see if it would blow up."

Alda began reading *Scientific American*, a habit he continues to this day, in search of information that is "accurate, but accessible to people like me—interested, but not an expert."

In the course of training thousands of scientists, from senior "stars" to young trainees, Alda says, "I found my calling." Nonetheless, he recalled once frustrating a Chinese scientist who had been trying to explain his work on hybridizing rice.

"Alan! Pay attention!" the scientist finally yelled, grabbing Alda by the lapels.

The incident illustrated what Alda called "the curse of knowledge—when you know your topic so well, you forget what it's like not to know."

Alda also conducted an impromptu test, asking Collins to rap out with his fingers the melody of a popular tune; the audience's challenge was to guess, from the beat alone, what song he was playing.

Most of the audience heard Happy Birthday, but Collins—a guitarist and piano player, not a drummer—had been carefully beating out the *Star Spangled Banner*.

Which was the perfect set-up for Alda: "When we know something so deeply, we hear the melody in our heads. We think the other person's hearing the melody too, but they're not."

Alda said most of the scientists he trains get better and become warmer in their interactions, "but not all become amazing." He called the tough cases "the prodigal sons, and you love them so much."



Participants in the conversation rise to acknowledge the applause of an audience unused to laughing so much at an event in Masur Auditorium.

He warned against the use of PowerPoint presentations, especially the sin of reading aloud what is up on the screen for all to see. "That's not communication, that's excommunication," he said, to roars of laughter.

Rosenblatt admitted to being a terrible lecturer, "not even persuasive to myself," but fared better in small groups, where it was possible to care about his audience as individuals. "The art of teaching is in part the art of learning," he discovered. "You're in the same boat together, moving toward some truth you can explore together."

Alda said he ranks communicating clearly about science as an accomplishment on par with a scientific breakthrough. "I don't think science was ever hurt by clarity," he observed.

Rosenblatt agreed. "Clarity is the main goal. 'What is it you want to say?' is the principal problem for artists and scientists...The whole thing is driven by that basic question, but you've got to know it first.

"If there's a key to communication," he concluded, "it's believing in your audience, not just believing in your subject...Respect the audience."

Alda agreed, adding, "We want the joy of knowing...the poetry of nature. It's so beautiful. Share it with us. That would make me so happy."

The entire conversation can be seen at <http://videocast.nih.gov/Summary.asp?file=19016&bhcp=1>. 📺



Fogarty director Dr. Roger Glass received the 2015 Sabin gold medal in recognition of his contributions to improving child health, including novel research on rotaviruses and noroviruses.

PHOTO: MIGNONETTE DOOLEY JOHNSON

Glass Receives Sabin Gold Medal Award

Fogarty International Center director Dr. Roger Glass has been presented with the 2015 Albert B. Sabin Gold Medal Award by the Sabin Vaccine Institute. Glass, who is also NIH associate director for international research, was recognized for his many contributions to improving children's health worldwide, including novel scientific research for the prevention of gastroenteritis from rotaviruses and noroviruses.

For more than three decades, Glass has pioneered research documenting the epidemiology and enormous global burden of rotavirus and has worked to prevent this disease through the development and use of vaccines. Rotavirus vaccines, including several he helped develop, are now in use in more than 70 national immunization programs, significantly reducing diarrheal hospitalizations and deaths and improving the health of millions of children worldwide.

"I am honored to have been chosen by my peers for this award, which commemorates Dr. Sabin's extraordinary legacy," Glass said. "When I began my career as an epidemiologist, I was struck by the devastating impact diarrhea had among so many children under 5. Today, it remains one of the most common causes of hospitalizations of children. As we work to improve child health, we must prioritize the use of rotavirus vaccines and encourage more countries to include them in their national immunization programs."

Glass worked for more than 20 years in partnership with Drs. M.K. Bhan, Harry Greenberg, Krishna Ella and others to develop a novel rotavirus vaccine for India costing only \$1 per dose, a fraction of the cost of the existing vaccines. It was licensed only in India, but a similar effort has produced a new vaccine licensed in Vietnam.

Before joining NIH, Glass held various positions at the Centers for Disease Control and Prevention, International Center for Diarrheal Disease Research in Bangladesh, Oxford University and the Sysin Institute in Moscow. He spent a year in the Global Program for Immunizations at the World Health Organization, where he developed a global strategy for surveillance of rotavirus hospitalizations.

He graduated from Harvard College in 1967, received a Fulbright fellowship to study at the University of Buenos Aires and then earned his M.D. from Harvard Medical School and his M.P.H. from Harvard School of Public Health. His Ph.D. is from the University of Gothenburg, Sweden.

The Sabin award recognizes a distinguished member of the public health community who has made extraordinary contributions in the field of vaccinology or a complementary field. The annual award commemorates the legacy of Sabin, who developed the oral live virus polio vaccine that is widely heralded with making a huge contribution to the near eradication of polio worldwide.

LIBERMAN

CONTINUED FROM PAGE 1

Right:

At first, Liberman said, a cancer diagnosis can seem daunting because of everything that needs to be done. She advised those who face one to break it into a “series of manageable tasks.”

PHOTOS: BILL BRANSON

patient during a Contemporary Clinical Medicine Great Teachers Grand Rounds lecture held recently in Lipsett Amphitheater.

Liberman began her career as an imaging radiologist at MSK. Her research focused on developing techniques for image-guided breast needle biopsies under stereotactic, ultrasound and MRI guidance, which would spare women from unnecessary surgery.

After working as a radiologist for 17 years, Liberman was diagnosed with stage IV lymphoma, a cancer of the lymph system. Doctors told her she had a 50 percent chance of remission. Seven days later, she started treatment.

“I observed so much of this as a physician,” she said. “And now I was seeing it as a patient.”

Over the course of her treatment, Liberman stayed in touch with her friends “because some people are there for you in ways that you can’t imagine.” She regularly emailed them about what she was going through.

At first, Liberman said, a cancer diagnosis can seem daunting because of everything that needs



to be done. She advised those who face one to break it into a “series of manageable tasks.”

During her treatment, she discovered the importance of being “your own advocate.” When she first started chemotherapy, the surgeon placed an Ommaya reservoir under Liberman’s scalp. The reservoir is a quarter-sized, dome-shaped plastic device that is connected to a catheter. It delivers chemotherapy and allows physicians to draw samples of spinal fluid.

Before her procedure, she asked her oncologist what kind of anesthetic would be used. The oncologist replied that the area cannot be numbed.

“I pulled out a bottle of local anesthetic spray we used for breast interventional procedures. I said, ‘Well, actually, it can.’ And I sprayed,” she said.

After four Ommaya reservoir placement procedures, Liberman wrote a letter to her neurosurgeon advocating for the use of local anesthetics.

“Even a small amount of pain over a long course of treatment adds up. It gives patients with cancer yet one more thing to dread,” she wrote. “It’s our mission not only to cure cancer, but also to relieve suffering.”

She described her experience “not just as cancer, but an opportunity to get hats.” Before she started her treatment, Liberman went with her daughter to look at hats. She bought 15 of them.

“I got the hats because I like to look for silver linings. I wanted to teach my daughter that when life is hard, you can do things to make it better. The hats also gave me something wonderful to think about as I started chemo,” Liberman wrote in an email to a friend.

She added that the hats helped bridge the awk-

p53: Guardian of the Genome

By Laura Liberman

*Dear friends, gather round now, and listen to me—
I’ll tell you the story of p53.*

*Her job, like all Moms’, is exquisitely hard—
The genome’s integrity she has to guard.*

*Hypoxia and oncogene activation,
DNA damage caused by radiation,
Or drugs or carcinogens can be the bait—
And p53 will step up to the plate.*

*Another big stressor that turns her on so:
If nucleotide levels become very low.
She chooses defenses that serve the cell best:
Such downstream effects as cell cycle arrest,*

*Repair of the damage done to DNA,
Apoptosis (cell death), if there’s no other way.
Another thing p53 can exhibit:
Angiogenesis she can inhibit.*

*What lets this protein be a critical actor
In keepings cells safe? She’s a transcription factor
The sites to which she can bind seem to be legion—
300 genes, each in its promoter region.*

*So p53, in concert or alone
Is the fabulous guardian of the genome.
Let’s celebrate p53, the unsung
Brave mother bird who’s protecting her young.*

ward silences of friends who ran out of safe subjects to talk about. "There are only so many times they can say 'you look great' when you don't. If they didn't know what to say, I could ask, 'Do you like my hat?'" she said.

Liberman said that one of the most difficult aspects of having cancer was when treatment was over.

"When you're under treatment, you have your adrenaline pumping and you're fighting. You have appointments. You have to be strong for your family. Then suddenly, it's done," she noted.

She said, "You have to find out what it is you can do and what it is you want to do. It's very important to not compare what you're doing now to what you did before."

After her cancer went into remission, Liberman transitioned from research to teaching and mentoring. She took a position directing a program that fosters career development for faculty. In this role, she determines the needs of faculty and puts together initiatives that meet those needs.

She realized that many faculty wanted to learn more about new developments in cancer research. So she designed two courses "that conveyed information in a manner that was understandable, without being condescending." Liberman invited MSK physician-scientists and translational researchers to speak about topics such as cancer biology, targeted therapy and immunotherapy. Students would read articles and then listen to a speaker who knew "the room was full of smart people who weren't experts in the topic being discussed."

Before each class, she read a poem to "illustrate the point of the lecture and get enthusiasm going." The poems also give attendees "a way to remember things and engage in a way that they wouldn't otherwise."

Liberman concluded her talk with a slide of Jennifer Goodman Linn, someone whom Liberman said had made a difference. In 2004, Linn was diagnosed with a rare cancer at MSK. She wanted to raise money to support research on rare cancers, so Linn founded "Cycle for Survival," a national indoor team cycling event.

This year, Liberman said, the event has already raised more than \$24 million. 12

New Scientific Appointments at NIDCR

Dr. James E. Melvin, who has been clinical director at NIDCR since 2010, recently became deputy scientific director. Dr. Janice S. Lee was appointed new clinical director.

"Dr. Melvin's outstanding leadership during his 5-year tenure as clinical director has made a difference in the lives of the patients who visit our dental clinic and in the lives and careers of the clinical fellows who are trained and mentored here," said NIDCR director Dr. Martha Somerman. "And, in the short time Dr. Lee has been intramural deputy clinical director, she has distinguished herself as an outstanding leader with a deep comprehension of the importance of basic research as well as the tireless dedication to translating preclinical research results into protocols for clinical studies."

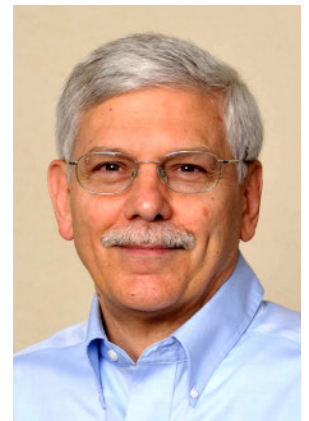
While clinical director, Melvin established a clinical fellows training program to provide a mentored experience grounded in basic research. In addition, he created a competitive K22 grant mechanism to support fellows' mentored transition to independent research and he built support mechanisms and staffing for development, review and execution of clinical research protocols.

Melvin is an internationally renowned researcher who has made landmark contributions to the field of salivary gland physiology. As a senior investigator in the secretory mechanisms and dysfunction section, he focuses on elucidating the ion transport mechanisms of salivary glands.

Before becoming clinical director, Melvin was professor of pharmacology and physiology in the Center for Oral Biology at the University of Rochester School of Medicine and Dentistry in New York. He held numerous appointments at the University of Rochester, where he received tenure in 1997 and where he published more than 92 papers. Melvin received a D.D.S. from Case Western Reserve University, earned a Ph.D. in neurobiology from the University of Rochester and completed a postdoctoral fellowship at what was then the National Institute of Dental Research.

Lee, a board-certified oral and maxillofacial surgeon, joined NIDCR as deputy clinical director in 2013, after a decade at the University of California, San Francisco. Her clinical and translational research program is exploring the natural history and genetic etiology of craniofacial anomalies and growth abnormalities. Her research interests include bone regeneration and stem cell biology, craniofacial congenital anomalies, fibrous dysplasia and McCune-Albright syndrome.

Before joining NIDCR, she was professor of clinical oral and maxillofacial surgery and departmental vice chair at the UCSF department of oral & maxillofacial surgery. Lee has published nearly 50 peer-reviewed journal articles, dozens of abstracts and poster presentations and several book chapters. She earned a D.D.S. and an M.S. from the University of California, Los Angeles School of Dentistry and an M.D. from Harvard Medical School. She completed a residency in oral and maxillofacial surgery at Massachusetts General Hospital/Harvard University and a 2-year research fellowship in NIDCR's Craniofacial and Skeletal Diseases Branch.

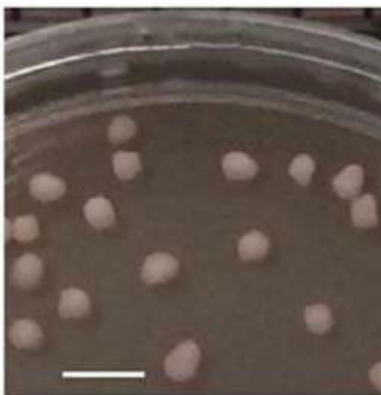


Dr. James E. Melvin (above)
and Dr. Janice S. Lee



A Patient's Budding Cortex—in a Dish?

A patient tormented by suicidal thoughts gives his psychiatrist a few strands of his hair. She derives stem cells from them to grow budding brain tissue harboring the secrets of his unique illness in a Petri dish. She uses the information to genetically engineer a personalized treatment to correct his brain circuit functioning. Just sci-fi? Yes, but...



Budding brain-like “human cortical spheroids” grow in a Petri dish.

PHOTO: SERGIU PASCA, STANFORD UNIVERSITY

An evolving “disease-in-a-dish” technology, funded by NIH, is bringing closer the day when such a seemingly futuristic personalized medicine scenario might not seem so far-fetched. Scientists have perfected mini cultured 3-D structures that grow and function much like the outer mantle—the key working tissue, or cortex—of the brain of the person from whom they were derived. Strikingly, these “organoids” buzz with neuronal network activity. Cells talk with each other in circuits, much as they do in our brains.

The work with what are called “human cortical spheroids” appeared May 25 online in the journal *Nature Methods*.

“There’s been amazing progress in this field over the past few years,” said NIMH director Dr. Thomas Insel, whose institute provided most of the funding for the study. “The cortex spheroids grow to a state in which they express functional connectivity, allowing for modeling and understanding of mental illnesses. They do not even begin to approach the complexity of a whole human brain. But that is not exactly what we need to study disorders of brain circuitry. As we seek advances that promise enormous potential benefits to patients, we are ever mindful of the ethical issues they present.”

NIH Study Finds Alcohol Use Disorder on the Rise

Alcohol use disorder, or AUD, is the medical diagnosis for problem drinking that causes mild to severe distress or harm. A new study supported by the National Institute on Alcohol Abuse and Alcoholism reports that nearly one-third of adults in the United States have an AUD at some time in their lives, but only about 20 percent seek AUD treatment. The study also reveals a significant increase in AUDs over the last decade. The new findings were reported online June 3 in *JAMA Psychiatry*.

“These findings underscore that alcohol problems are deeply entrenched and significantly undertreated in our society,” said NIAAA director Dr. George Koob. “The new data should provide further

impetus for scientists, clinicians and policy makers to bring AUD treatment into the mainstream of medical practice.”

A team of researchers led by Dr. Bridget F. Grant of NIAAA conducted more than 36,000 face-to-face interviews of U.S. adults as part of the 2012-2013 National Epidemiologic Survey on Alcohol and Related Conditions III (NESARC-III). NESARC III is a continuation of the largest study ever conducted on the co-occurrence of alcohol use, drug use and related psychiatric conditions. The original NESARC survey was conducted in 2001-2002.

NIH Researchers Pilot Predictive Medicine by Studying Healthy People’s DNA

A new study by NIH scientists has turned traditional genomics research on its head. Instead of trying to find a mutation in the genomic sequence of a person with a genetic disease, they sequenced the genomes of healthy participants, then analyzed the data to find “putative,” or presumed, mutations that would almost certainly lead to a genetic condition.

Out of almost 1,000 volunteers whose genomes were examined, about 100 had genomic variants predicting that they would have a rare disease. Almost half of them indeed had the disease when researchers went back and carefully evaluated them, said NHGRI’s Dr. Leslie Biesecker, corresponding author of the study published June 4 in the *American Journal of Human Genetics*.

“We were surprised that this many individuals had positive findings in a group of individuals that is basically healthy,” said Dr. Jennifer Johnston, lead author and staff scientist in NHGRI’s clinical genetics section. The research is part of ClinSeq, a large-scale, NIH research study that explores the fundamental medical, molecular and bioinformatic challenges facing individualized genome sequencing in a clinical research setting.

Once they identified participants with genomic mutations, researchers called them back to the clinic to give them a customized work-up. They called this method of looking at the person after looking at the genomic data “iterative phenotyping.”

“We achieved about a 50 percent accuracy of predicting disease in people not knowing anything about their health status beforehand,” Biesecker said. In other words, the researchers changed the odds of these patients having one of these diseases from something like 1 in 50,000 to 1 in 2.

Given this accuracy, Biesecker is upbeat about the future of genomic medicine. “These results show that you can dramatically improve your predictions based on genome sequence information.”

feedback

Have a question about some aspect of working at NIH? You can post anonymous queries at www.nih.gov/nihrecord/index.htm (click on the Feedback icon) and we'll try to provide answers.

Feedback: Recently, I've seen people dressed in military type uniforms on campus, but they do not look like U.S. military. Did the NIH Police get new uniforms? Why do they look so combat-like? NIH is supposed to be a welcoming place but the new look makes this look like an armed camp.

Response from the Office of Research Services: There have been many security-related events over the years such as the terrorist attack on 9/11, the Ft. Hood shooting, the Navy Yard shooting and the tragic event in Newtown, Conn., that impact how police departments operate. In most police departments, and at NIH as well, you no longer find all police officers in the same dress uniforms. The uniforms are now designed for the specific duties in which the officers may be engaged. The NIH Police have three basic dress types. The regular dress uniform is worn by officers executing basic police duties without regular involvement in collateral assignments. The second dress is a midnight blue uniform worn by canine officers and officers who may be engaged in assignments where they will be in contact with dirt or other debris. The third dress is an olive green uniform, not camouflaged as are military versions, worn by police who are members of the special response team. This dress allows for easy identification of these officers in case of an event where their expertise is needed.

Feedback: I read the Feedback answer regarding the Bldg. 31 escalators [*NIH Record*, May 22, 2015] with interest because I also wondered about both. The answer provided didn't completely answer the question—why can't the "C" wing escalator be used as a staircase? The person who sent in the question made a good point about the lack of reliable elevators in the "C" wing and being able to use that short escalator to walk up to the "B" wing would be helpful.

Response from the Office of Research Facilities: As previously reported, the C wing escalator will eventually be decommissioned and designs call for the replacement to be a fixed staircase. The currently inoperable escalator is

not code-compliant for use as stationary stairs. Code requires that stairs have a graspable hand-rail and uniform risers, which an escalator does not have.

At present, three separate staircases service the C wing, including the additional fire safety stairwell built in 2008 to improve emergency evacuation (http://nihrecord.nih.gov/newsletters/2008/03_07_2008/story4.htm).

Finally, maintenance reports researched by the Office of Research Facilities do not correspond with the assertion that the C wing elevators are unreliable. Reports indicate a single isolated day in the past year where the C wing had only one operating elevator for any period of time. Overall, these elevators have been performing as expected, and on most days, all four elevators are in operation.

Feedback: Why does the NIH Police force need so many parking spaces? They have tons of spaces in the old Bldg. 31 lot and recently acquired more that used to be for temporary parking.

More police cars are parked in the garage. Given the push-back from the county on parking at NIH, where is the average Joe supposed to park? Many NIH'ers don't have public transportation near their homes or, like me, work 50-60 hours a week, which makes carpooling difficult. It seems you have to get to campus earlier and earlier just to get a space, which is hard for parents with school-aged children. NIH is touted as a great place for the over-50 age group but what about those of us who aren't seniors yet? What are we supposed to do?

Response from ORS: As a general practice, other than four spaces reserved in MLP-10, police vehicles should not park in general parking in the garage other than when the surface lot behind Bldg. 31 is being cleared during inclement weather. The NIH Police chief will reiterate to staff that, whenever possible, police vehicles should be parked in designated spaces only.

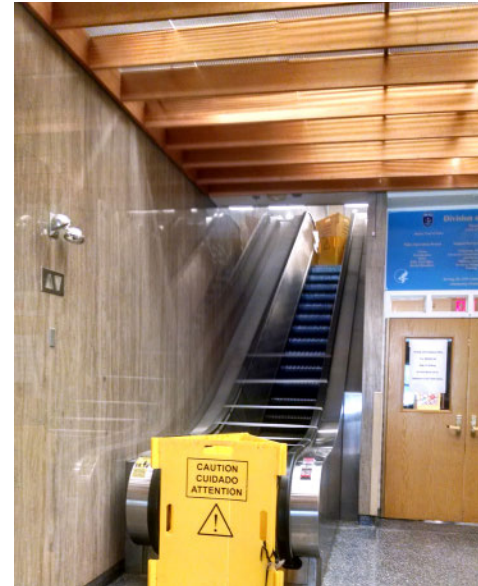
Feedback: There is a covered bus shelter containing a bench [across from Bldg. 3]. I saw a bus stopped there letting someone off, there is a sign saying it is an NIH shuttle and a phone number, yet the bus would not stop for me. If this is indeed not a stop it needs to be labeled as such to avoid confusion. If it is not used it should be removed.

Response from ORS: We are very sorry for any inconvenience or confusion this may have caused you. The shelter you mentioned across from Bldg. 3, on Center Dr., is not a normal shuttle stop and had been labeled accordingly. Since you have brought this to our attention, we checked and discovered that the label was removed. We have now re-labeled the shelter as not being a regular shuttle stop.

The shelter was installed and belonged to Metro when they operated bus routes through the NIH campus prior to Sept. 11, 2001. We have used the stop for special contingencies and events. Currently, we are evaluating the need for this shelter since it is used infrequently for these special activities.

To assist you with shuttle information, visit the ORS Division of Amenities and Transportation Services (DATS) web site (www.ors.od.nih.gov/pes/dats/nihshuttleservices/Pages/shuttle.aspx) to access all NIH shuttle schedules and stops. Also, visit <http://wtssshuttle.com> from your mobile phone or smartphone to access "real-time shuttle arrival" predictions in a mobile-friendly format.

Thank you for bringing this to our attention; feel free to contact DATS for any transportation questions at (301) 402-RIDE (7433). 📞



This escalator in the lobby of Bldg. 31C is slated to become a regular staircase.

PHOTO: CARLA GARNETT

NIMHD Hosts National Minority Health Month Events

NIMHD hosted several events in recognition of National Minority Health Month in April. This year's theme, "30 Years of Advancing Health Equity; The Heckler Report: A Force for Ending Health Disparities in America," marks the 30th anniversary of the *Report of the Secretary's Task Force on Black and Minority Health*.

NIH director Dr. Francis Collins hosted Valerie Jarrett, senior advisor to President Barack Obama and assistant to the President for intergovernmental affairs and public engagement, for a conversation in Masur Auditorium.

The NIH Recreation and Welfare Association joined NIMHD to co-host a kompa class on the Bldg. 31A patio to promote exercise, health and wellness through dance. Kompa is a modern meringue genre dance in Haiti with European and African roots.

A new event—the NIMHD Health Disparities Science Café: Effectively Communicating and Disseminating Science to Inform Public Health Policy—rounded out the month in the Clinical Center atrium as part of NIH Minority Health Promotion Day.

Also on hand that day were exhibitors from the institutes and centers as well the HHS Office of Minority Health Resource Center and three local NIMHD grantees—the Maryland Center for Health Equity, the NIMHD Research Center on Latino Immigrant Refugee Health Disparities and the Health Policy Research Consortium.



Guest speaker Kweisi Mfume (l), former U.S. congressman (D-MD), president & CEO of the National Association for the Advancement of Colored People and principal investigator of the Health Policy Research Consortium, an NIMHD Transdisciplinary Collaborative Center Program, addresses the first Health Disparities Science Café; at right, he chats with Clinical Center director Dr. John Gallin (l) and NIMHD acting director Dr. Yvonne Maddox. **PHOTOS: ERNIE BRANSON**



Valerie Jarrett (3rd from l), senior advisor to President Barack Obama and assistant to the President for intergovernmental affairs and public engagement, joined NIH director Dr. Francis Collins (c), for a public chat in Masur Auditorium. Also on hand to greet Jarrett for her campus visit were (from l) NIDDK director Dr. Griffin Rodgers, Office of Research on Women's Health director Dr. Janine Clayton, NIH deputy director for science, outreach and policy Dr. Kathy Hudson, Maddox, and NIH principal deputy director Dr. Lawrence Tabak. **PHOTO: BILL BRANSON**



Above, l: Dr. Xinzhi Zhang (l) and Dr. Rina Das (r) of NIMHD share information at an NIH Minority Health Promotion Day exhibit in the Clinical Center. **PHOTO: ERNIE BRANSON**

Right: Participants learn the fundamentals of kompa in a class jointly hosted by NIMHD and the NIH Recreation and Welfare Association. The event promoted exercise, health and wellness through dance. Like salsa and merengue, kompa is danced with a partner. **PHOTO: EDGAR DEWS III**